

**APPENDIX C**  
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## **SECTION 01 11 00**

### **SUMMARY OF WORK**

#### **PART 1 -GENERAL**

##### **1.1 PROJECT/WORK IDENTIFICATION**

- A. General: The name of the project is "240 Beaver Street, Waltham, MA". The project number of 1830.20 as noted on Drawings, Specifications and contract documents produced by CDW Consultants, Inc.

##### **1.2 DESCRIPTION OF WORK**

- A. The CONTRACTOR'S work includes certain contaminated soil excavation, management and disposal activities to be performed at a portion of the property at 240 Beaver Street, Waltham, MA in compliance with the Draft Release Abatement Measure (RAM) Plan dated September 22, 2022, and prepared in accordance with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000. Specific Contractor activities shall include the following:
- Clearing, grubbing, and preparation of the Site
  - The excavation and off-site disposal of up to 500 cubic yards (750 tons) of soil impacted with metals, pesticides and PCBs
  - Site restoration and backfill
  - All other work and materials as specified, noted, and appurtenant
  - All work to be completed by \_\_\_\_\_
- B. The CONTRACTOR shall provide a plan to manage, control and secure the work site during the performance of work. The plan shall describe site security, erosion control, and public safety measures as they relate to the use of equipment, access routes, and the management, storage and loading of excavated soil.
- C. The Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Numbers (RTNs) associated with the Site are 3-36027 and 3-36180. CONTRACTOR is directed to MassDEP's online searchable site at <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite> to obtain additional information about the Sites.
- ##### **1.3 COORDINATION**
- A. General: The Work of the Contract includes the beginning of construction activity through project closeout and warranty periods. The CONTRACTOR shall coordinate all Work with the City of Waltham and ENGINEER.

**1.4 QUALITY ASSURANCE:**

- A. Quality Assurance Plans: The CONTRACTOR shall agree to participate in and conform to all items contained in the Draft RAM Plan and any modifications to that plan.

**1.5 PERMITTING REQUIREMENTS:**

- A. Local and State Permits: The CONTRACTOR will be responsible for obtaining any local and State permits as required by the City of Waltham to perform the Work of the Contract. The CONTRACTOR shall comply with all requirements and conditions identified in the permits.
- B. Other Permits: Permits, if required for other work including the development and/or operation of the CONTRACTOR's temporary facilities, shall be the responsibility of the CONTRACTOR.

**1.6 CONTRACTOR REQUIREMENTS:**

- A. All employees of the CONTRACTOR and his Subcontractors shall have, at a minimum, OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training, including all appropriate refresher training, in accordance with 29 CFR 1910.120.
- B. The CONTRACTOR shall develop its own site-specific health and safety plan for its workers and visitors to the work site. The CONTRACTOR shall provide its employees with appropriate personal protective equipment as warranted by site conditions and/or the results of employee personal exposure monitoring. The ENGINEER is not responsible for the health and safety of the CONTRACTOR.

**END OF SECTION 01 11 00**

## **SOIL REMEDIATION AT 240 BEAVER STREET, WALTHAM, MA**

### **TECHNICAL SPECIFICATIONS**

01 11 00	Summary of Work
01 71 13	Mobilization, Staging and Demobilization
02 61 00	Handling, Transportation and Disposal of Excavated Materials
31 00 00	Earthwork

### **CONTRACT DRAWINGS**

C-1.0	Approximate Area of Soil Excavation
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### **APPENDICES**

APPENDIX A	Draft Release Abatement Measure Plan and TSCA Performance Based Cleanup Plan, 240 Beaver Street, Waltham, MA, RTN's 3-36027 and 3-36180
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## **SECTION 01 71 13**

### **MOBILIZATION, STAGING AND DEMOBILIZATION**

#### **PART 1 - GENERAL**

##### **1.1 DESCRIPTION**

- A. Work Includes: The transportation and storage of all equipment, labor and materials to and from the construction site necessary to complete the Work.
- B. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and these Specifications.

#### **PART 2 - MATERIALS**

NOT USED

#### **PART 3 - EXECUTION**

##### **3.1 STORAGE AREA**

It shall be the Contractor's sole responsibility to procure and maintain a suitable storage area for tools, materials and equipment necessary to perform the work.

1. The storage area obtained by the Contractor shall not obstruct or interfere with pedestrian or vehicular movement, and shall not occupy any space within a public right-of-way, except with specific permission from the Owner.
2. For temporary construction access and staging, the Contractor shall enter via the driveway from Beaver Street as shown on the drawing. The Contractor shall set up a temporary staging area for construction purposes on the property.
3. The storage / staging and decontamination areas shall be kept neat at all times.
4. The Owner shall not be a party to negotiations related to acquisition of areas for storage or cleanup of the same.

##### **3.2 EQUIPMENT**

- A. Contractor shall transport all equipment to the site, assemble the equipment, disassemble equipment and remove as needed to proceed with the work. During construction, all equipment and materials shall be maintained as needed during the work.
- B. Contractor shall lay and position temporary facilities such as decontamination and equipment/personal trailers to minimize disruption of the work.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- A. Separate Measurement or payment shall not be made for all Work of this section, but all costs in connection therewith shall be included in the Contract Lump-Sum price.
- B. Lump Sum cost shall be inclusive of additional occurrences or delays (weather), if required to complete the project

**END OF SECTION 01 71 13**

## **SECTION 02 61 00**

### **HANDLING, TRANSPORTATION, AND DISPOSAL OF EXCAVATED MATERIALS**

#### **PART 1 GENERAL**

##### **1.1 DESCRIPTION OF WORK**

- A. Work Included: This Section describes the work activities required to access, excavate, manage, transport, and dispose of excavated materials.
- B. CONTRACTOR shall furnish all labor, materials, equipment, and incidentals and perform all operations necessary to properly excavate, segregate, sample, classify, handle/manage, load, transport, and dispose of excavated materials within the Area of Work.
- C. CONTRACTOR'S attention is directed to site plans showing the physical limitations of the Area of Work and is fully responsible for managing the sequence of work accordingly.
- D. CONTRACTOR shall furnish, operate, and maintain excavated material stockpile/staging areas and equipment decontamination stations for the duration of excavation activities and dismantle and dispose of decontamination stations and stockpile/staging areas at project completion.
- E. CONTRACTOR is directed to review the attached "Draft Release Abatement Measure Plan and TSCA Performance Based Cleanup Plan" and shall adhere to the provisions of that plan. The plan will become final when submitted to MassDEP after project award and prior to the start of work.

##### **1.2 RESPONSIBILITIES**

- A. CONTRACTOR's Responsibilities:
  - A. The CONTRACTOR shall prepare an Excavated Materials Management Plan (EMMP) that describes their means and methods to complete the work to be performed under this Specification.
  - B. The CONTRACTOR shall demonstrate that they will conduct the work using the most feasible and least environmentally impactful means and methods. Any additional permitting or mitigation measures required, or delay of time to complete the work as a result of CONTRACTOR means and/or methods or changes thereto, shall be the responsibility of the CONTRACTOR.
  - C. The CONTRACTOR shall establish sufficient survey controls to accurately remove soils to the horizontal and vertical limits established in the drawings.
  - D. The CONTRACTOR shall perform excavation work to the extents shown on Site Plan C-1.0 and as marked in the field. CONTRACTOR shall perform additional excavation work, in areas where unacceptable contamination remains in soil, as directed by the City of Waltham's (City) Environmental Consultant.



- E. The CONTRACTOR shall assist the City's Environmental Consultant in obtaining representative confirmatory samples of the excavated areas for field screening.
  - F. The CONTRACTOR shall manage excavated material by securely containing it prior to transport to the disposal, recycling, and reuse facilities.
  - G. The CONTRACTOR shall wait until all disposal facility approvals have been received prior to the loading and transportation of excavated materials for disposal.
  - K. The CONTRACTOR shall furnish, operate and maintain equipment decontamination stations for the duration of excavation work.
  - L. The CONTRACTOR shall develop and implement site-specific emergency response and health and safety protocols and procedures for workers, visitors and trespassers.
  - M. The CONTRACTOR shall take protective measures during work included in this section, to prevent conditions at the site that could result in any adverse effect on nearby wildlife/aquatic ecosystems.
  - N. For each shipment of material transported to a disposal facility, the CONTRACTOR shall demonstrate to the City that the least costly means of disposal has been selected. This demonstration shall be made prior to shipment.
  - O. The CONTRACTOR shall advise the City at least three business days in advance of the schedule for both excavation and transportation off-site of excavated material. No off-site shipments will occur without the approval of the City.
  - P. The CONTRACTOR shall provide an environmental field technician to oversee the loading of excavated material for off-site disposal.
  - Q. The CONTRACTOR shall complete the transportation and final disposal of excavated materials within 90 days of initial generation of the materials.
  - R. The CONTRACTOR shall develop and implement dust control measures.
- B. City of Waltham Responsibilities:
- A. The City will review and approve the proposed selection of off-site disposal facilities.
  - B. The City's Environmental Consultant has completed waste disposal sampling and analysis, and shall perform field screening and confirmatory sampling of excavated areas, dust control monitoring, and soil documentation coordination.
  - C. The City will be the Generator and will sign all waste profiles and MCP Bills of Lading (BOL) as the Generator.
  - D. The City's Licensed Site Professional (LSP) will complete one waste profile, and sign and stamp BOLs as the LSP of Record. All soil shall be transported under a BOL. The receiving facility shall provide electronic attestation of receipt of soils within five days of

receiving notification from the LSP of the availability of the BOL for that purpose on eDEP. Additional waste profiles beyond the first, will be prepared by the CONTRACTOR.

### **1.3 QUALITY ASSURANCE AND QUALITY CONTROL**

- A. The CONTRACTOR shall be responsible for the selection of a final disposal facility for soil. Sampling was conducted in May 2022 by the City's LSP to precharacterize the soil.
- B. The provided precharacterization data is intended to include sufficient characterization of the soils for disposal without a need for additional testing. In the absence of the need for additional testing due to quantity changes or unexpected soils encountered during excavation, the CONTRACTOR shall be responsible for any additional sampling and analyses of soil samples required by his selected waste disposal facility beyond those provided in the provided data
- C. The Contractor shall be responsible for any additional sampling and analysis of soil samples required by his selected waste disposal facility, and/or preparation of additional disposal profiles resulting from a change to the selected disposal facility.

### **1.4 SUBMITTALS**

- A. The following shall be submitted within five (5) days after the issuance of the Notice to Proceed. No on-site work can begin until all submittals identified in 1.4(A and B) have been received and approved.
- B. A schedule detailing the proposed sequence of work.
- C. A detailed site plan indicating the construction staging/stockpile areas as they relate to the active construction area. The detailed site plan shall show the potential layout of the staging area as it relates to the stockpile soil, debris and/or miscellaneous materials and construction materials.
- D. A material management system plan to track the excavated materials from generation through final disposition. Plan shall include at a minimum the following:
  - a. Provisions for the tracking of the excavated materials from the "point of excavation location" to the location of the stockpile material in the storage/staging area to the final disposition of the stockpiled material including all proposed daily log sheets.
  - b. Drawings of the proposed area of excavation and any temporary materials management areas, including locations where trees will be removed.
  - c. An Equipment/Vehicle Decontamination Plan.
- E. All pertinent information relating to the transport of excavated material. The information, at a minimum, shall include:
  - a. Name and address of all transporters.
  - b. Transporter identification number (U.S. Environmental Protection Agency (EPA) or Massachusetts Department of Transportation Transporter) and expiration date.
  - c. Proof of permit, license, or authorization to transport excavated material in all affected states.

- d. Details of methods, vehicle and containers (as applicable) to be used for transporting excavated material.
  - e. Dust control measures.
  - f. Plan for on-site pre-treatment of excavated soil that is unsuitable for transport.
- F. The CONTRACTOR shall identify each waste stream and propose an appropriate disposal facility that will accept the excavated material as classified. The facility shall provide written confirmation that it is permitted to accept and will accept the classified material of the general quality and quantity described in the Draft RAM Plan.
- G. The Contractor shall provide all final disposal documentation, including but limited to:
- a. Load sheets completed and signed by the hauler and the receiving facility.
  - b. Certified weight slips from the receiving facility.
  - c. The facility and DCR's attestations of shipment and receipt.

## 1.5 REFERENCES

- A. All regulations cited and those of other governing agencies in their most recent version are applicable. This Section refers to many requirements found in these references, but in no way is intended to cite or reiterate all provisions therein or elsewhere. It is the CONTRACTOR's responsibility to know, understand, and abide by all such regulations and common practices. Other provisions contained in these references may from time to time during the execution of this Contract be enforced by the Engineer. In the event of a conflict, the most stringent regulations shall govern.

The following documents and/or publications are made part of this Section by reference herein:

- A. Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.
- B. Massachusetts Hazardous Waste Regulations, 310 CMR 30.00.
- C. Massachusetts Solid Waste Management Facility Regulations, 310 CMR 19.00.
- D. Massachusetts Site Assignment Regulations for Solid Waste Facilities, 310 CMR 16.000.
- E. Massachusetts Wetlands Protection Act Regulations, 310 CMR 10.00.
- F. "Interim Remediation Waste Management Policy for Petroleum Contaminated Soils", MassDEP, Bureau of Waste Site Cleanup Policy #WSC-94-400.
- G. "Hazardous Waste Operations and Emergency Response", Federal Occupational Safety and Health Act (OSHA), 29 CFR 1910.120.
- H. "General Regulations for Hazardous Waste Management," EPA, 40 CFR 260.
- I. "Regulations for Identifying Hazardous Waste, Hazardous Waste Generators and Hazardous Waste Transporters", EPA, 40 CFR 261, 262 and 263.
- J. "Standards for Management of Specific Hazardous Wastes and Facilities", EPA, 40 CFR 266.
- K. "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills", MassDEP Policy # COMM-97-001.

- L. "Compendium of Quality Control Requirements and Performance Standards for Selected Analytical Protocols" (CAM), MassDEP, Bureau of Waste Site Cleanup Policy # WSC-10-320.
- M. "Technical Update: Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil," MassDEP.
- N. "Similar Soils Provision Guidance (MassDEP, Bureau of Waste Site Cleanup Policy # WSC#-13-500).
- O. "Interim Remediation Waste Management Policy for Petroleum Contaminated Soils, Attachment II, Jar Headspace Analytical Screening Procedure," MassDEP, Bureau of Waste Site Cleanup Policy #WSC-94-900.
- P. Local regulations governing dust control, soil handling, and health and safety.
- Q. All other applicable Federal, State, or local requirements.

## 1.6 DEFINITIONS

- A. Area of Work: the approximate area which includes excavation areas, and those ancillary areas where personnel, equipment and materials are transported, managed, filled or removed. Excavated material not destined for off-site disposal can be returned to approximately the same location from which it originated.
- B. Contaminated Soil: Material found to contain oil or hazardous material (OHM) at concentrations equal to or exceeding applicable MCP Method 1 Standards (310 CMR 40.0300), Reportable Concentrations (310 CMR 40.1600), or regulated background levels (as defined in the MassDEP "Technical Update: Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil" and 310 CMR 40.00006) or other applicable State or Federal Regulations.
- C. Generator: The City will be the Generator, with the exception of materials contaminated by releases from the CONTRACTOR's vehicles, equipment, or supplies.
- D. Hazardous Material/Waste: A waste material or combination of waste material, that because of its quantity, concentration, physical, chemical, or infectious characteristics may cause or significantly contribute to an increase in a serious irreversible or incapacitating reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. This definition also includes, but is not limited to, materials regulated under TSCA, M.G.L., Chapter 21E, RCRA (40 CFR 239-282), Massachusetts Hazardous Waste regulations (310CMR 30.00), the MCP (310 CMR 40.00), and any applicable Federal regulations.
- E. Special Waste: Any solid waste that is determined not to be hazardous waste and that exists in such quantities or in such chemical or physical state or any combination thereof so that particular management controls are required to prevent an adverse impact from the collection, transport, transfer, storage, processing, treatment or disposal of the solid waste. Asbestos and PCB-contaminated soils/sediments/fill are examples of special waste.

- F. Soil: Any unconsolidated mineral and organic matter, including any fill, overlying bedrock that has been subjected to and influenced by geologic and other environmental factors, excluding sediment.

## **1.7 PERMIT REQUIREMENTS**

- A. The CONTRACTOR shall obtain and adhere to all Federal, State, and local permits required for the transport and disposal of excavated material.
- B. The CONTRACTOR shall verify that the disposal facilities proposed have all certifications and permits as required by Federal, State, and local regulatory agencies to receive and dispose of the excavated material.
- C. If applicable, the CONTRACTOR shall adhere to any special conditions of work established by the local Conservation Commission, MA DEP and US Army Corps of Engineers including close-out documentation.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. All CONTRACTOR personnel shall wear personal protective equipment and protective clothing consistent with the levels of protection required for this Work.
- B. Any material shipment containers must be approved by and labeled in accordance with the U.S. Department of Transportation (DOT). The containers shall have a secure cover which will prevent a release of material during transportation.
- C. Temporary stockpiles of soil shall be constructed using 10 mil polyethylene double layered as a base. Stockpiles shall be kept covered with a single layer of polyethylene and surrounded with haybales.

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. The CONTRACTOR shall handle and convey all equipment and materials to perform site work described in these Contract documents.
- B. The CONTRACTOR shall excavate soils to the depth and extent shown on the contract drawings. ,
- C. The CONTRACTOR shall load, transport, and dispose of the excavated soil as specified herein.
- D. The CONTRACTOR shall immediately notify the City of visible stains or unnatural odor of any sampled or excavated material, or if potentially contaminated and/or hazardous material is encountered. Work shall not be allowed to continue in this area until approved by the City.

### **3.2 TEMPORARY STORAGE OF EXCAVATED MATERIALS**

- A. The stockpiling or consolidating of excavated material near sensitive human health receptors, such as public and private water supply wells, shall be strictly prohibited per 314 CMR 9.07(4)(d).
- B. Excavated material to be temporarily stockpiled shall be placed entirely on a 10-mil polyethylene liner, shall be covered at the end of each day's work and at all times when earthwork is not taking place on site, with the same material or so as to minimize the infiltration of precipitation, volatilization of contaminants and erosion of the stockpile. Covers used shall be properly secured and replaced if damaged. Temporary fencing shall be placed entirely around stockpiles to prevent employees and trespassers from access.
- F. Excavated material shall be completely covered with a minimum 10 mil-thick layer of plastic tarp at the end of each working day and secured with ropes, ties, anchors or equivalent materials. The covered system shall be capable of resisting actual wind gust at the site, with a minimum wind capacity of 40 miles per hour.
- G. Stockpiles are to be segregated based on a review of pre-characterization data, visual and olfactory conditions, sediment sampling and field screening results obtained during excavation.
- H. Stockpiles shall include haybale berms around the edges to minimize infiltration of storm water or exfiltration of leachate.
- I. Any failure of materials or procedures used in employing the base layer or cover layer shall be immediately repaired, replaced or re-secured so as to minimize precipitation infiltration, volatilization and erosion/runoff of the excavated material.
- J. Movement and/or aeration of excavated material shall be limited to those activities that are necessary to manage such stockpiles.
- K. Disposal of material that is contaminated as a result of careless handling, cross-contamination or use of unauthorized procedures shall be at the CONTRACTOR'S expense. Delays of Work resulting from temporary storage of excavated material, regardless of the classification, shall be at no additional cost to the the City.
- L. The stockpiles shall be clearly labeled and securely barricaded from contact with workers and the general public.

### **3.3 DEBRIS MANAGEMENT**

- A. The CONTRACTOR is required to recycle/reuse any other recovered materials in lieu of disposal if the material is of acceptable physical quality and chemical quality, and the CONTRACTOR can identify a facility willing and permitted to accept the material at no additional cost.

### **3.4 MCP NOTIFICATION REQUIREMENTS FOR SOIL**

- A. Notification to the MassDEP under the MCP shall be the sole responsibility of the City.
- B. The CONTRACTOR shall be familiar with the MCP definitions of "two-hour", "72-hour" and "120-day" reportable conditions.

- C. The CONTRACTOR shall immediately notify the DCR of any "two-hour", "72-hour" and "120-day" reporting conditions.
- D. Depending upon the nature of the reportable conditions, the MCP may require the cessation of work, implementing a Limited Removal Action (prior to notification), developing and/or implementing an "Immediate Response Action Plan" or a "Release Abatement Measure Plan" prior to continuing work or other actions, which could delay certain aspects of the site work.
- E. The City's LSP shall prepare electronic eDEP MCP filings required during construction, including but not limited to Release Notification Forms (RNF), Release Abatement Measures (RAM), Utility-related Abatement Measures (URAM), and subsequent associated status and closure reports.
- F. The CONTRACTOR shall provide all soil management and disposal documentation in support of those eDEP filings.

### **3.8 ENVIRONMENTAL FIELD MONITORING/DUST CONTROL**

- A. The air quality program is to be designed to protect public health and the environment from the potential generation of dust and OHM contaminant release during the Work.
- B. When there is a potential for visible dust being generated during periods of site activity, air monitoring may be limited to visual assessment and documentation.
- C. Dust shall be controlled during excavation and movement of soil to limit potential spread of contaminants and potential exposure of contaminants to workers and the public.
- D. Nuisance dust levels shall be reduced by pre-wetting the surface soils and by establishing and maintaining clean access roads. At a minimum, the CONTRACTOR shall provide clean water that is free from salt, oil and other deleterious materials.
- E. When feasible, access roads shall be sprayed with water on a regular basis to minimize the generation of dust.
- F. All containers and stockpiles shall be covered at all times, except as necessary to place or remove materials from the containers or stockpiles. The CONTRACTOR shall monitor the covers daily to ensure the covers are in place and effectively eliminating the generation of dust.

### **3.9 DISPOSAL FACILITY CLASSIFICATION**

- A. The CONTRACTOR shall transport the material for off-site disposal at a permitted TSCA facility that has accepted the material prior to shipment.
- B. Material shipped to any disposal facility must meet the selected facility's chemical and physical acceptance criteria. Selected facilities must be established, fully operational, appropriately insured, and be operating in compliance with all applicable local, state, and federal regulations.

### **3.10 WASTE PROFILES AND SHIPPING DOCUMENTS**

- A. The CONTRACTOR shall provide certified tare and gross weight slips for each load received at the accepted facility and these shall be attached to each returned shipping document.

- B. The CONTRACTOR shall prepare and submit to the City for review all waste profile applications and questionnaires, and coordinate with disposal facilities and all Federal and State Environmental Agencies.
- C. The City's Environmental Consultant shall prepare all draft Bills of Lading for review by the CONTRACTOR'S selected facility prior to shipment. Final copies of Bills of Lading shall be signed by the City as generator and by the City's LSP following approvals of draft Bills of Lading.

### **3.11 TRANSPORT OF EXCAVATED MATERIAL**

- A. The CONTRACTOR shall not be permitted to transport materials off-site until all disposal facility documentation has been received, reviewed, and approved by the City.
- B. The CONTRACTOR shall transport materials from the site to the disposal facility in accordance with all United States Department of Transportation (USDOT), USEPA, MassDEP, and applicable state and local regulations.
- C. The Hauler(s) shall be licensed in all states affected by transport.
- D. The CONTRACTOR shall be responsible for ensuring that free liquid in soil is not transported. "Wet soils" with free-draining liquids shall not be loaded for transport. When there is a question as to whether this standard is met, the paint filter test (EPA Method 9095) shall be used to determine the presence of free-draining liquids in a representative sample. The CONTRACTOR shall collect and dispose of or manage any free liquids that may result during transportation at no additional cost to the City.
- E. All excavated material transported upon public roadways shall be covered by a tarpaulin or other means to prevent the material from escaping the vehicle during transport, and where necessary, truck tire and undercarriage decontamination shall be employed to prevent the tracking of soils onto public roadways.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- A. Measurement and payment for the work of this section is based upon the definitions and classification of the excavated material as described in Sections 1.6 (B) and 3.9. The most cost-effective means of managing, transporting, re-use or disposal shall be used.
- B. City approval is required prior to transportation and disposal of any materials pre-classified under 1.6 (B).

### **4.2 MEASUREMENT**

- A. Excavated materials that are classified for transportation and disposal under 1.6 (B), will be measured on a Per Ton basis. The costs covered under the Unit Price shall include all



applicable taxes and surcharges.

- B. No separate measurement will be made for all other work in this section, but all costs in connection therewith shall be included in the Contract lump sum price except as otherwise noted. All preparation and incidental work necessary to accomplish the work herein will be considered incidental to the Lump Sum price.

#### **4.3 PAYMENT**

- A. Separate payment shall not be made for all other Work of this section, but all costs in connection therewith shall be included in the Contract Lump-Sum price. All preparation and incidental work necessary to accomplish the work herein will be considered incidental to the Lump Sum price.

#### **4.4 PAYMENT ITEMS**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>
5	TRANSPORT AND DISPOSE OF CONTAMINATED SOIL	TN

**END OF SECTION 02 61 00**

## **SECTION 31 00 00**

### **EARTHWORK**

#### **PART 1 - GENERAL**

##### **1.1 DESCRIPTION OF WORK**

- A. Extent of earthwork as indicated on the Contract Drawings and as specified herein.
- B. Furnish labor, materials, equipment, transportation and services required to complete all earthwork requirements as specified herein or indicated on the Contract Drawings. The work includes, but is not limited to the following:
  - 1. Clearing, grubbing, and preparation of the Site.
  - 2. Providing, placing, and compacting all fill materials required to complete the project.
  - 3. Removal and on-site relocation or off-site disposal of all boulders, as defined herein, as they interfere with the work.
  - 4. Excavation and temporary stockpiling of soils impacted with metals, PCBs, and pesticides to depths of 9 feet, or to levels approved by the City's ENGINEER.
  - 5. Temporary protection of adjacent public and private property.
  - 6. Legal off-site disposal of unsuitable or surplus excavated materials including soil impacted with metals, pesticides and PCBs.
  - 7. All sheeting, shoring and bracing necessary to protect truck and equipment access areas from collapse.
  - 8. Rough Grading.
  - 9. Restoration.
  - 10. Dust Control.
  - 11. Segregating, culling and all screening operations, stockpiling and handling of on-site material required to render the material suitable for reuse on-site as indicated herein.
  - 12. Preparation and submittal of a Health and Safety Plan prior to initiating earthwork related activities.

##### **1.2 STANDARDS AND DEFINITIONS**

- A. The following standards and definitions are applicable to the work of this Section to the extent referenced herein:

1. MDPW Specifications: The Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, including latest revisions.
2. ASTM: American Society for Testing and Materials.
3. AASHTO: American Association of State Highway and Transportation Officials.
4. MCP: Massachusetts Contingency Plan, 310 CMR 40.0000
5. Trench Excavation: Excavations of any length where the width is less than twice the depth and where the shortest distance between payment lines does not exceed ten (10') feet.
6. Open Excavation: All excavations not conforming to the definition of Trench Excavation shall be defined as Open Excavation.
7. Invert or Invert Elevation: The elevation at the inside bottom surface of the pipe or channel.
8. Un-Regulated Soil: Excavated material consisting of natural subsoil, or natural glacial outwash which is completely segregated from existing fill material, and is not impacted by contaminants which may be disposed of off-site without restriction
9. Regulated Soil: Excavated material which is impacted by contaminants and, if transported off-site, must be disposed of at a landfill or similar facility as specified in Section 026100, Handling, Transportation, and Disposal of Excavated Materials.
10. The words "finished grade" as used herein shall mean the required final grade elevations indicated on the Contract Drawings. Spot elevations shall govern over proposed contours. Where not otherwise indicated, project site areas outside of the building shall be given uniform slopes between points for which finished grades are indicated or between such points and existing established grades
11. The word "subgrade" as used herein, means the required surface of natural glacial outwash deposit, or compacted Structural Fill. This surface is immediately beneath the site improvements, specially dimensioned fill, paving, loaming or other surfacing material.

### **1.3 EXAMINATION OF SITE CONDITIONS AND DOCUMENTS**

- A. It is hereby understood that the CONTRACTOR has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions as indicated in the Contract Documents, or obvious from observation at the Site
- B. Plans, surveys, measurements, and dimensions under which the work is to be performed are believed to be correct, but the CONTRACTOR shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found except as otherwise provided herein.

#### **1.4 SUBSURFACE CONDITIONS**

- A. It is the CONTRACTOR's sole responsibility to make interpretations and draw conclusions with respect to the character of the materials to be encountered and their impact upon his work based on his expert knowledge.

#### **1.5 PERMITS, CODES AND SAFETY REQUIREMENTS**

- A. Work shall conform to the Contract Drawings and Specifications and shall comply with applicable codes and regulations. Present in writing to the ENGINEER, all conflicts between the Contract Drawings, Specifications, and applicable codes and regulations, for resolution before commencing the Work.
- B. Comply with all rules, regulations, laws and ordinances of the City of Waltham and the Commonwealth of Massachusetts, and of all other authorities having jurisdiction. All labor, materials, equipment and services necessary to make the work comply with such requirements, shall be provided without additional cost to the CITY.
- C. The CONTRACTOR shall not close any street, sidewalk or passageway except as indicated on the Contract Drawings. The CONTRACTOR shall so conduct his operations as to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks or other facilities near enough to the work to be affected thereby.
- D. The CONTRACTOR shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Contract Drawings at no additional cost to the CITY. Arrange and pay for legal off-site disposal of all excess excavated materials, obtain proper disposal receipts from the applicable disposal facility for verification.
- E. Notify "Dig Safe" and the City before starting work; comply fully with utility company requirements.

#### **1.6 LAYOUT AND GRADES**

- A. The CONTRACTOR shall maintain and/or re-establish benchmarks and survey monuments shown on the Contract Drawings or found to exist on the site to provide a base reference for the construction. Replace any that may become destroyed or disturbed. The CONTRACTOR shall employ and pay all costs for a registered Civil Engineer or Surveyor who is licensed within the jurisdiction of the project site to lay out all lines and grades in accordance with the Contract Drawings and Specifications, and as necessary or required for the construction.

#### **1.7 DISPOSITION OF EXISTING UTILITIES**

- A. Active utilities existing on the site shall be carefully protected from damage and relocated or removed by others as specified in the Contract Documents. When an active utility line is exposed during construction, its location and elevation shall be plotted on the record Contract Drawings and both the ENGINEER and UTILITY OWNER notified in writing.

- B. Inactive or abandoned utilities encountered during construction operations shall be noted on the record Contract Drawings and reported in writing to the ENGINEER.

## **1.8 DISPOSAL**

- A. The CONTRACTOR shall manage all on-site excavated soils as specified in Section 026100, Handling, Transportation, and Disposal of Excavated Materials.
- B. Solid waste resulting from screening or culling operations shall become the property of the CONTRACTOR and be legally disposed of off-site at no additional cost to the OWNER.

## **1.9 SUBMITTALS**

- A. Submit, as specified in Division 01, GENERAL REQUIREMENTS, the following, and as specified in this Section
  - 1. A detailed construction sequence plan for project excavation indicating temporary stockpile areas, side slopes of excavations, limits of any required temporary excavation support and sequence and procedures for slope protection, subgrade protection, excavation, filling, backfill and compaction.
  - 2. No backfill materials shall be brought to the site without prior approval of the City. Submit the following information to the City for review at least two (2) weeks prior to use:
    - a. Location of the borrow site, including a street map with the limits of the borrow pit property and the location of the borrow source on the site clearly illustrated.
    - b. Present and past usage of the source site and material.
    - c. Any previously existing report(s) associated with an assessment of the source site as relates to the presence of oil or other hazardous materials.
  - 4. Results of the sampling and monitoring program as specified herein for the manufactured top soils.
  - 5. Soil samples.
    - a. Classification in accordance with ASTM D2487 for each on-site or borrow soil material proposed for fill, backfill, or engineered fill.
    - b. Laboratory compaction curve in accordance with ASTM D698 for each on site or borrow soil material proposed for fill, backfill, or engineered fill.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. Ordinary Fill: Well-graded, natural inorganic soil approved by the ENGINEER and meeting the following requirements:

1. It shall be substantially free of organic or other weak or compressible materials, of frozen materials, and of particles larger than 4 inches maximum dimension.
2. It shall be of such nature and character that it can be compacted to the specified density in a reasonable length of time.
3. It shall be free of highly plastic clays, of all materials subject to decay, decomposition or dissolution, and of cinders or other materials that will corrode piping or other metal.

B. Topsoil: Provide topsoil in accordance with Section 32 90 00.

## **2.2 UNSUITABLE MATERIAL**

- A. Material containing organic matter, frozen materials, debris, materials subject to decomposition, silts too wet to be stabilized, existing fill, and solid waste debris that in the opinion of the ENGINEER, do not satisfy the design requirements, shall be unsuitable material.
- B. Unsuitable material shall be disposed of off-site by the contractor at no additional cost to the City.

## **2.3 EQUIPMENT**

- A. Provide sufficient equipment units of suitable types to spread, level, and compact fills promptly upon delivery of materials.
- B. CONTRACTOR may use any compaction equipment or device that he finds convenient or economical, but the ENGINEER retains the right to disapprove equipment, which, in his opinion, is of inadequate capacity or unsuited to the character of material being compacted.

## **2.4 SOURCE QUALITY CONTROL**

- A. Provide samples of each fill material from the proposed source of supply including on-site sources. Allow at least two (2) weeks for testing and evaluation of results before material is needed.
- B. All fill material that is imported onto the site shall be substantially free of contamination. The concentrations of contaminants in imported fill material shall not exceed either one-half of the Massachusetts Contingency Plan's (MCP's), 310 CMR 40.0000, RCS-1 reporting thresholds, or the pre-existing contaminant conditions at the site, whichever is lower. The ENGINEER reserves the right to require that the CONTRACTOR perform chemical analysis on the sample being submitted to confirm that the sample is free of contaminants as discussed above. It is not likely that chemical analysis will be required for samples representing fill material originating from a commercial bank-run or rock quarry source. However, it is likely that the ENGINEER will require that chemical analysis be performed on samples originating sources other than commercial bank-run or rock quarry sources. The required chemical analysis will include, but may not be limited to, Extractable Petroleum Hydrocarbons (EPH), Volatile Petroleum Hydrocarbons (VPH), Volatile Organic Compounds (VOC's) by 8260, Polynuclear

Aromatic Hydrocarbons (PAH's) by 8270, Total RCRA-8 Metals, Pesticides/PCB's, and pH. The cost of chemical testing when required by the ENGINEER shall be borne by the CONTRACTOR.

- C. Samples of proposed fill material exhibiting concentrations of contaminants in excess of the standards above will be rejected for use on the site by the ENGINEER.
- D. For samples of proposed fill material originating from a recycling facility, the CONTRACTOR will also be required to submit documentation demonstrating that the facility is permitted by the Massachusetts Department of Environmental Protection, or the Department provided with the required notification, to perform recycling of Asphalt, Brick, and Concrete (ABC) materials, non-coated or impregnated with any substances, in accordance with the Massachusetts solid waste regulations 310 CMR 16.05 (3) (e).
- E. ENGINEER will be sole and final judge of suitability of all materials.
- F. Tests of materials, including chemical testing, as delivered may be made from time to time. Materials in question may not be used, pending test results. Remove rejected materials and replace with new, whether in stockpiles or in place.

### **PART 3 EXECUTION**

#### **3.1 GENERAL EXCAVATION**

- A. Excavate all materials as indicated on the Contract Drawings and specified herein.
- B. All excavation shall be performed in the dry. Excavation shall be accomplished by methods that preserve the undisturbed state of subgrade soils.
- C. When excavations have reached the prescribed depths, the ENGINEER shall be notified and will make an inspection of the conditions. After inspection, the CONTRACTOR will receive approval to proceed if conditions meet design requirements.
- D. Should an excavation be carried beyond the depth indicated on the Contract Drawings or as specified herein as a result of CONTRACTOR's error, the CONTRACTOR shall provide and place Ordinary Fill as directed by the ENGINEER, to the required level at no additional cost.

#### **3.2 USES OF FILL MATERIALS**

- A. Fill materials listed above shall be utilized as follows and as otherwise indicated on the Contract Drawings, specified or directed.
- B. Ordinary Fill: For areas backfilled below a depth of 6 inches.

#### **3.3 PLACING FILLS**

- A. Provide all specified fill materials.

- B. Areas to be filled shall be undisturbed stable soil and shall be free of trash, construction debris, compressible or decayable materials and standing water. Do not place fill when subgrade or layers below it are unsuitable.
- C. Notify the ENGINEER when excavations are ready for inspection. Filling shall not be started until conditions have been approved by the ENGINEER.
- D. Furnish approved materials. Place fill in layers not exceeding 6 inches in compacted thickness and compact as specified below for various fill conditions.
- E. Place Ordinary Fill in uniform lifts not exceeding 6 inches (compacted thickness) and compact to 92 percent of its maximum dry Proctor density.
- F. Within lawns and planting areas:
  - 1. All fills to within eighteen inches (18") of finished grade shall be compacted to 90 percent of its maximum modified dry Proctor density.
  - 2. All fills within eighteen inches (18") of finished grade shall be compacted to between 88 percent and 90 percent of its maximum modified dry Proctor density.
- G. In the case of lawn and planting areas, compaction requirements for subgrades and fills shall be considered minimums and maximums within the density percentages called for, and any over compaction of subgrades or fills which would be detrimental to lawn or planting objectives shall be corrected by loosening subgrades or fills through tilling or other means and recompacting to specified compaction limits.
- H. The CONTRACTOR shall notify the ENGINEER three (3) days in advance when the rough grades are established and ready for formal inspection.

### **3.4 ROUGH GRADING**

- A. Rough grading shall include the shaping, trimming, rolling, and refinishing of all surfaces of the subbase, shoulders, and earth slopes, and the preparation of grades as shown on the Contract Drawings. The grading of shoulders and sloped areas may be done by machine methods. All ruts shall be eliminated. Traffic of workers and equipment across the soil subgrade areas shall be prohibited following excavation to the required lines and grades.
- B. If, during the progress of work, any pipe, drain, or other construction is damaged due to operations under the Contract, the CONTRACTOR shall repair all damage at no additional cost to the City and restore damaged areas to their original conditions.
- C. Perform all other cutting, filling and grading to the lines and limits indicated on the Contract Drawings. Grade evenly to within the dimensions required for grades shown on Contract Drawings and specified herein. No stones larger than four inches (4") in largest diameter shall be placed in upper six inches (6") of fill. Fill shall be left in a compacted state at the end of the workday and sloped to drain.
- D. The CONTRACTOR shall bring all areas to grades as shown on the Contract Drawings and in the details. The City however, may make such adjustments in grades and alignments as are found necessary to avoid special conditions encountered.
- E. No rubbish of any description shall be allowed to enter fill material. Such material shall be removed from the site.



- F. Placed fill materials that become disturbed shall be regraded and re-compacted. Fill materials that become contaminated shall be removed and replaced, as directed by the City.

### **3.5 SUBGRADE MAINTENANCE**

- A. The work of this Section shall provide a subgrade which shall be parallel to the finished grades or elevations shown on the Contract Drawings and shall be below finished grades in accordance with the various depths specified herein below.
- B. Upon completion of rough grading operations, remove all debris and rubbish and leave areas ready for work by other trades
- C. Settlement of fills and washouts shall be corrected by filling and compacting as specified herein.

### **3.6 DUST CONTROL**

- A. The CONTRACTOR shall manage dust as specified in Section 026100, Handling, Transportation, and Disposal of Excavated Materials.
- B. The CONTRACTOR shall take all necessary measures and provide equipment and/or materials to minimize dust from rising and blowing across the site and from impacting neighboring residential property to the satisfaction of the OWNER. In addition, the CONTRACTOR shall control all dust created by construction operations and movement of construction vehicles, both on the site and paved ways.
- C. If dust control is required off-site due to work under this Contract, in addition to watering, sweeping and other methods, the CONTRACTOR shall apply water in the required amounts to properly control dust.
- D. The use of calcium chloride, petroleum products, or other chemicals is prohibited. Chemical materials may not be used on subgrades of areas to be seeded or planted.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- A. Separate Measurement or payment shall not be made for all Work of this section, but all costs in connection therewith shall be included in the Contract Lump-Sum price.

**END OF SECTION 31 00 00**